

On the “Application of the Kolmogorov-Smirnov test to CMB data: Is the universe really weakly random?”, by Sigurd K. Næss

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### Abstract

This short note is concerned with a recent paper by Næss. We explain why the statements in the paper are absolutely irrelevant.

Arnold in [1], [2], [3], [4] applies the stochastic parameter and the statistic introduced by Kolmogorov [5] to measure the objective stochasticity degree of datasets. He proves that Kolmogorov Stochasticity Parameter (KSP) method is mathematically sound, non-trivial, and universal (cf. [6]).

KSP [7] is applied to quantify the degree of randomness (stochasticity) in the temperature maps of the Cosmic Microwave Background radiation maps.

In a recent paper [8], the author fails to understand the difference between KSP and Kolmogorov-Smirnov test (K-S test). A straw man argument is claimed against the results obtained in [9]. It is stated that Kolmogorov-Smirnov test is applied to CMB data “Application of the *Kolmogorov-Smirnov test* to CMB data.” In reality, the papers [7], [9] concern “*Kolmogorov stochasticity parameter* measuring the randomness in the cosmic microwave background.” Most importantly, it is obvious from Arnold’s work that KSP is applicable to **strongly correlated** datasets, too.

One must read Arnold’s papers to understand the key differences between KSP and K-S test. The very fact that Arnold in his paper series devoted to KSP does not mention K-S test at all, should be enough to conclude that the methods have different objectives. We hope our colleagues will consult literature before writing another irrelevant, critical paper (cf. [10]).

### References

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